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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,786	07/21/2003	Tatsuji Nakajima	CU-3306 BWH	6089

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03/02/2004

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EXAMINER

BLACKWELL RUDASIL, GWENDOLYN A

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,786

Applicant(s)

NAKAJIMA ET AL.

Examiner

Gwendolyn A. Blackwell-Rudasill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/966,215.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent no. 6,068,914, Boire et al.

Regarding claim 1

Boire et al disclose a glazing pane having an anti-reflection coating. Example 1 demonstrates an anti-reflective multilayer stack containing a silicon oxycarbide, SiO_xC_y , layer having a refractive index of 1.73, (column 10, lines 52-60).

Because the refractive index of the silicon oxycarbide material meets the refractive index limitations of claim 1, the values for a/d and b/e are present in the prior art. Absent an objective showing to the contrary, the addition of the a/d and b/e limitations do not provide patentable distinction over the prior art of record. *See MPEP 2112.01.*

3. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by United States Patent no. 6,174,599, Boire et al.

Regarding claim 1

Boire et al disclose a glazing panel with a multilayer coating comprised of a transparent substrate with a functional layer and an intermediate layer between the functional layer and the

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substrate. The intermediate layer has a decreasing refractive index gradient through the thickness wherein the refractive index of the layer decreases away from the surface of the substrate, (column 2, lines 50-65). The lowest refractive index ranges from 1.45-1.60, which corresponds to the middle refractive index silica of the present invention, while the highest refractive index material ranges from 1.70-2.35, which corresponds to the high refractive index material of the present invention, (column 3, lines 46-52). Silicon oxycarbide, SiO_xC_y , can be used for the low and high refractive index materials, (column 4, lines 4-57).

Because the refractive index of the silicon oxycarbide material meets the refractive index limitations of claim 1, the values for a/d and b/e are present in the prior art. Absent an objective showing to the contrary, the addition of the a/d and b/e limitations do not provide patentable distinction over the prior art of record. *See MPEP 2112.01.*

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent no. 6,174,599, US '599 in view of United States Patent no. 5,530,581, Cogan, further in view of United States Patent no. 6,068,914, US '914.

The limitations of claim 1 are discussed above. US '599 also disclose an outermost, external layer formed so as to improve the optical appearance of the glazing panel, (column 3, lines 1-4). The external layer has a refractive index of 1.40-1.70 and can be comprised of silicon oxycarbide that is formed using organosilicon precursors, (columns 4-5, lines 64-33). The multilayer coating has a refractive index layer structure starting from the substrate: middle/high/low. US '599 do not specifically disclose that the silicon oxycarbide external layer is hydrogenated.

Cogan discloses a hydrogenated silicon oxycarbide coating having high transmittance in the visible and solar regions, (column 3, lines 14-20). The oxycarbide film can be used as part of multilayered anti-reflection coatings, (column 7, lines 28-45).

US '914 disclose the limitations of claim 1 above. US '914 also disclose that the coating can have a refractive index structure of alternating high/low or medium/high/low with a thin protective overcoat applied to the coating. (columns 4-5, lines 30-23).

US '599, Cogan, and US '914 disclose inventions utilizing the aforementioned films as part of anti-reflective coatings. While the particular refractive index of the silicon oxycarbide coating of Cogan does not fall within the low refractive parameters as exemplified by Applicant, it is known in the art to adjust the refractive index of silicon oxycarbide coatings by varying the

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carbon content, (US '599, column 7, lines 50-52). It would have been obvious to one skilled in the art at the time of invention to modify the external layer of US '599 with the hydrogenated silicon oxycarbide coating of Cogan to create a glazing panel having improved transmissive properties while also being impervious to the transport of water, (Cogan, column 3, lines 14-20).

It would also have been within the skill of one in the art at the time of invention to use the high/low layer structure of US '914 in the modified invention of US '599/Cogan to create an anti-reflection film having high mechanical and chemical durability, (US '914, columns 2-3, lines 66-3).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

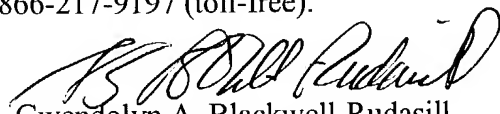
United States Patent no. 6,362,414, disclose a multilayer coating used on a transparent substrate wherein the coating comprises an undercoating layer and a crystalline overcoat. The undercoating layer can be silicon oxycarbide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn A. Blackwell-Rudasill whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:00 am - 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gwendolyn A. Blackwell-Rudasill

Examiner

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